

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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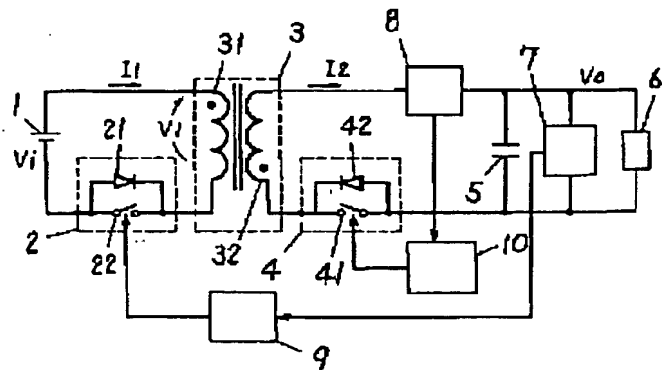
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TITLE : SWITCHING POWER SUPPLY DEVICE



**ABSTRACT :** PURPOSE: To make it possible to perform zero-crossing turn-ON in the entire operating region and to reduce the deterioration of efficiency in the light-load state.

CONSTITUTION: A first control circuit 9 turns ON a first switching means 2 after a second switching means 4 is turned OFF, receives the information from a voltage detecting means and determines the ON period of the first switching means 2 so as to stabilize the output DC voltage. The second switching means 4 is turned ON after the first switching means is turned OFF. A second control circuit 10, which receives the information from a current detecting means 8 and has the function for turning OFF the second switching means 4 when the current value reaches the specified value, is provided. Thus, the reverse exciting energy of a transformer 3 can be adjusted to the required amount for achieving zero-cross turn-ON in the entire operating conditions. Therefore, the changing width of the operating current becomes small under the light-load conditions, and the deterioration of efficiency can be prevented.

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